

# Work Order ID 90085

\*90085\*

Page 1

September-13-12 1:05:31 PM

Item ID: D6102-013 Accept \*N9000040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Saddle Billet  
 Start Date: 9/13/12 Start Qty: 12.00 \*12\* Cust Item ID:  
 Required Date: 10/05/12 Req'd Qty: 12.00 \*12\* Customer:

Reference:

Approvals: Process Plan: MLJ Date: 12-09-13 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
<b>Draw Nbr</b>	<b>Revision Nbr</b>								
D6102	Rev D								
100		0.00							
<b>*100*</b>	PURCHASING								
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>17910</u> a) Description: Aluminum Billetb) 7.000" x 6.500" x 2.000" thickc) Tolerance on all dimensions is +0.06/0.00d) Grain direction along 6.500" lengthe) Material: 6061-T6/T6511 (QQ-A-250/11 or QQ-A-200/8)Material release certifi								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
<b>*110*</b>									
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								
120	QC6- Inspect dimensions to drawing	0.00							
<b>*120*</b>									
QC	Memo	0.00							
Quality Control	Check certification to Dwg D6102 for compliance								

CL 12/09/14 (12)

12/14/12 (12)

DAS  
14  
2-89 12/04/27

12

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

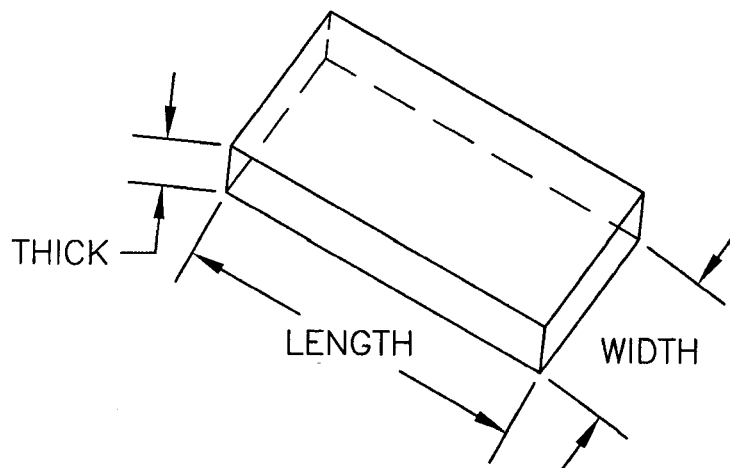
**FAULT CATEGORY**

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other



DESIGN #	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CP	APPROVED #	DRAWING NO. D6102	Rev. D SHEET 1 OF 1
DATE 06.06.30		TITLE SADDLE BILLET, 6061	SCALE NTS
A	01.03.30	NEW ISSUE	
B	03.10.20	ADD D6102-005/-007/-009	
C	04.08.25	ADD D6102-010/-011	
D	06.06.30	ADD D6102-013	

## SPECIFICATION CONTROL DRAWING



SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 90085 MLS  
12-09-13

RELEASED

06.08.15 #

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.06/-0.00), AND GRAIN DIRECTION AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.06/-0.00.

ALL DIMENSIONS ARE IN INCHES.

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6102-001	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	7.880	6.250	2.000	Along 7.880 Length
D6102-003	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	6.000	6.250	2.000	Along 6.000 Length
D6102-005	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	47.85	15.250	1.000	Along 47.85 Length
D6102-007	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	7.500	7.000	2.500	Along 7.500 Length
D6102-009	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	11.000	6.000	5.000	Along 11.000 Length
D6102-010	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	7.950	8.250	2.500	Along 7.950 Length
D6102-011	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	6.500	8.250	2.500	Along 6.500 Length
D6102-013	6061-T6/T651 (QQ-A-250/11 or QQ-A-200/8)	6.500	7.000	2.000	Along 6.500 Length

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**Castle Metals®**

A. M. Castle &amp; Co.

PACKING SLIP/  
CERTIFICATE OF CONFORMANCE

Page 1 of 1

Shipment No:1480779

<b>Ship From:</b> A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		<b>Sold To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		<b>Ship To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		<b>Deliver To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
<b>Date Shipped</b>	<b>F.O.B.</b>	<b>Freight Terms</b>		<b>Carrier</b>		<b>BOL No</b>	
26-SEP-2012	ORIGIN	Prepaid		MANITOULIN		1480779-2	

<b>Shipment Details</b>	<b>Final Destination Branch - MON</b>
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Order No	Line No	Item No	Description				
2426845	1	8641.MO	2.0000.PL.6061.T651.ALUMINUM.48.5000.144.5000 CUT 2SIDED TO 7 IN ( + .0310/- .0000 IN (GRAIN TO RUN ALONG 6.5")) X 6.5 IN ( + .0310/- .0000 IN (GRAIN TO RUN ALONG 6.5")) - ALUMINUM PLATE SAW SPECIFICATIONS: QQ-A-250/11				
Purchase Order No		Part Number		Ordered Qty		Invoice Qty	
17910		YOUR ITEM NUMBER: D6102-013		12.00 PCS		12.00 PCS	
Details		SHIP AS SOON AS RECEIVED					
Delivery No.	Mill	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
117991376	AMAG ROLLING GMBH	78574/02		12			109.3709

These commodities/technologies are subject to US Export Administration &amp; US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle &amp; Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

Name:

DAS  
14 12/09/27  
2-89

C43



10152423  
LNI

**Abnahmeprüfzeugnis 3.1 (EN 10204)**  
**Inspection certificate – mill certificate**

Nr.: 85283780 01 / 1

Rev. 0

Seite / page: 2 von / of 2

Datum / date: 2012 04 10

Zertifiziert nach / certified to ISO 9001, ISO/TS 16949, EN/AS 9100, ISO 14001, NADCAP

Material erfüllt auch die mechanischen Eigenschaften von AMS 4027 in der letzt gültigen Ausgabe, ist aber nicht gestempelt. / Material meets also the mechanical properties of AMS 4027 in the current version, but not marked.

Es wird bestätigt, dass die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellung entspricht.  
We hereby certify that the material described above has been tested and complies with the terms of the order contract.

Werkssachverständiger / factory specialist	E-Mail / e-mail
Josef Klampfer	j.klampfer@amag.at

Herstellerland: Österreich / goods origin: The goods are of Austrian origin.  
Maschinell erstellt - Gültig ohne Unterschrift / Automated - valid without being signed.

12/01/27

**Castle Metals FP**

HEAT NUMBER 78574/03  
MECHANICAL ID \_\_\_\_\_  
ITEM CODE 8641  
LOT NUMBER \_\_\_\_\_  
PO NUMBER 152423  
RECEIPT DATE 5-25-12  
SUPPLIER AMAG  
SPECIFICATION \_\_\_\_\_  
LCS 70  
COMMENT \_\_\_\_\_  
APPROVED DL



PO 152423  
WI

1C 8641

**Abnahmeprüfzeugnis 3.1 (EN 10204)**  
**Inspection certificate - mill certificate**

Nr.: 85283780 01 / 1  
Rev. 0

Seite / page: 1 von / of 2  
Datum / date: 2012 04 10

Zertifiziert nach / certified to ISO 9001, ISO/TS 16949, EN/AS 9100, ISO 14001, NADCAP

<b>Auftraggeber / customer:</b> Castle, A M & Co (Inc) + Castle Metals 3400 N Wolf Rd FRANKLIN PARK IL 60131 USA	<b>Bestell Nr. / order no.:</b> Datum / date:	152423 2012 01 03
<b>Warenempfänger / consignee:</b> Castle, A M & Co (Inc) + Castle Metals 3400 N Wolf Rd FRANKLIN PARK IL 60131 USA	<b>Auftragsbest. Nr. / order confirm. no.:</b> Datum / date:	63568 2012 01 11
	<b>Lieferschein Nr. / delivery note:</b> Datum / date:	85283780 2012 04 30
	<b>Akkreditiv Nr. / letter of credit no.:</b>	
<b>Endkunde, Bestell-Nr. / Your cust., ord. no.:</b> 6061 agreement		

<b>Produkt/product</b> Form / form: Plate, stretched Werkstoff / material: 6061 Zustand / temper: T651 Dim. / dlm: [inch]: 2,000x48,50x144,50 Kundenartikel-Nr / customer article no.: 8641	<b>Bedingungen/terms</b> Techn. Lieferbedingungen / techn. spec.: AMS-QQ-A-250/11, 08.1997 ASTM B 209 - 07 AMS 4027N, 07.2008 ASME SB-209, 2011a; but not marked  Sondervorschrift / special terms:
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AB-Pos. ord.-item.	BNr/Los/Tellos Lot/No./Part	Guss Nr. cast no.	Werkstoff material	Kollo packno.	Gewicht netto weight net	Stk. pcs.
01	78574/02/00	01/0049475/2	6061	6356840001	4188,713 lbs	3
01	78574/02/00	01/0049475/2	6061	6356840002	1397,707 lbs	1
01	78574/02/00	01/0049475/2	6061	6356840003	4193,122 lbs	3

Chemische Zusammensetzung / chemical composition: [%] Gewichtsanteile / weight proportion (OES)											
Guss Nr. / cast no.	AMAG designation	Al	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Sonstige Einzel
01/0049475/2	6061										
	actual	97,35	0,72	0,43	0,23	0,13	0,86	0,16	0,03	0,05	0,02
	actual	0,04									

Zugversuch / Tensile test									
BNr/Los Lot/No.	Zustand temper	Richtung direction	Tests		Rm [ksi]	Rp0.2 [ksi]	A2" [%]		
78574/02	T651	LT	5	Min	46,8	43,1	12		
78574/02	T651	LT		Max	48,0	43,9	13		

<b>Bemerkungen / notes</b>

AMAG rolling GmbH, Postfach 32, A-5282 Ranshofen, Österreich - [www.amag.at](http://www.amag.at)  
AMAG rolling GmbH, P.O. Box 32, A-5282 Ranshofen, Austria - [www.amag.at](http://www.amag.at)

2012/04/27